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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/924,723 | 08/09/2001 | Hironori Mizuguchi | Q65824 | 3958 |

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| EXAMINER | |
|---|---|
| AMINZAY, SHAIMA Q | |
| **ART UNIT** | **PAPER NUMBER** |
| 2684 | |

DATE MAILED: 06/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| *Office Action Summary* | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/924,723 | MIZUGUCHI, HIRONORI | |
| | Examiner | Art Unit | |
| | Shaima Q. Aminzay | 2684 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *28 March 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 August 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☒ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

# DETAILED ACTION

## Response to Amendment

The following office action is in response to Amendment, filed March 28, 2005.

Claims 1-42 are pending.

## Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action.

> (a ) Patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kang (Kang et al., U. S. Patent 6,038,220) in view of Okamoto (Okamoto et al., U. S. Patent 5,697,064).

Regarding claim 1, Kang disclose a base station of a mobile communication system (see for example, Figure 2 (220), column 1, lines 8-13, column 2, lines 50-63) comprising: a communication monitor circuit for detecting quality deterioration of radio communication with mobile stations (see for example, Figures 1-2, column 4, lines 1-26, column 5, lines 42-67, and column 8, lines 25-

36, the control circuit (224) and channel modulator (communication monitor circuit) coupled to the transmitter (226) for detecting signal quality deterioration between base station and mobile station), wherein said communication monitor circuit comprises: a monitor unit for monitoring a channel quality of said radio communication (see for example, Figures 2, column 7, lines 21-27, the control circuit (224) contains the monitoring unit for the mobile communication (communication state)), a judging unit coupled to said monitor unit for judging whether said channel quality monitored by said monitor unit is worse than a predetermined state (see for example, Figure 2, column 5, lines 49-67, column 7, lines 21-27, the control circuit (224) contains the judging unit with the monitoring unit for mobile communications to monitor and adjust power according to the predetermined state if deterioration occurs), and a notifying unit coupled to said judging unit for notifying an external circuit of said quality deterioration when said judging unit judges that said channel quality is worse than said predetermined state (see for example, Figures 1-2, column 5, lines 49-67, column 6, lines 1-56, column 7, lines 21-27, the control circuit (224) contains the judging unit with the monitoring unit and notifying unit for mobile communications to monitor and adjust power when deterioration occurs, and notify external circuit).

Kang does not specifically disclose the "communication state".

In related art dealing with mobile communication system, Okamoto teaches the "communication state" (see for example, column 1, lines 9-11, column 2, lines 31-41, column 7, lines 1-10).

It would have been obvious to one of ordinary skill in the art at the time invention was made to check "communication state" in Kang's wireless power control system to watch for any quality deterioration in the wireless communication system, as disclosed by Okanoto (see for example, column 2, lines 31-41).

Regarding claim 6, Kang disclose a base station of a mobile communication system (see for example, Figure 2 (220), column 1, lines 8-13, column 2, lines 50-63) comprising: receivers for demodulating transmission signals transmitted from mobile stations to produce demodulated signals (see for example, Figure 2, column 4, lines 1-4, column 7, lines 15-19, lines 42-43, column 8, lines 1-5, column 9, lines 22-26, the base station (220) receiver (221) receives the signal from the mobile (210) for demodulating (demodulator 222)); signal-to-noise ratio determining circuits coupled to said receivers respectively for determining signal-to-noise ratios of said demodulated signals (see for example, Figure 2, column 7, lines 15-19, lines 42-43, column 9, lines 22-26, the bit-energy (signal)/noise (Signal-to-noise) ratio determining circuit (224) coupled to the receiver (22) via received signal path (decoder (223) and demodulator (222)); transmission power control bit generators coupled to said signal-to-noise ratio determining circuits respectively for generating said transmission power control bit signals based on signal-to-noise rations (see for example, Figure 2, column 7, lines 21-27, and column 8, lines 8-16, the control circuit (224) including power control bit

generator and energy (signal)/noise (Signal-to-noise) ration determining circuit); a channel quality monitor circuit coupled to said receivers for detecting quality deterioration of a communication state of radio communication between said base station and said mobile stations (see for example, Figures 1-2, column 4, lines 1-26, column 5, lines 42-67, column 7, lines 42-43, and column 8, lines 25-36, the control circuit (224) and channel modulator (communication monitor circuit) coupled to the receiver (221) for detecting signal quality deterioration between base station and mobile station of communication (communication state)); and a transmission power bit adjusting circuit coupled to said communication state monitor circuit and said transmission power control bit generators for controlling said transmission power control bit signals so as to suppress an increase of transmission power of said mobile stations when said communication state monitor circuit detects said quality deterioration (see for example, Figure 2, column 7, lines 21-27, the transmission power control monitoring, and adjusting to increase or decrease the transmission power when detects quality deterioration).

Kang does not specifically disclose the "communication state".

In related art dealing with mobile communication system, Okamoto teaches the "communication state" (see for example, column 1, lines 9-11, column 2, lines 31-41, column 7, lines 1-10).

It would have been obvious to one of ordinary skill in the art at the time invention was made to check "communication state" in Kang's wireless power

control system to watch for any quality deterioration in the wireless communication system, as disclosed by Okanoto (see for example, column 2, lines 31-41).

Regarding claim 14, Kang disclose a transmission power control system for use in a base station of a mobile communication system (see for example, Figure 2 (220), column 1, lines 8-13, column 2, lines 50-67 continued to column 3, lines 1-67, and column 4, lines 1-33), said base station including receivers for demodulating transmission signals transmitted from said mobile stations to produce demodulated signals (see for example, Figure 2, column 4, lines 1-4, column 7, lines 15-19, lines 42-43, column 8, lines 1-5, the base station (220) receiver (221) receives the signal from the mobile (210) for demodulating (demodulator 222)), signal-to-noise ratio determining circuits coupled to said receivers respectively for determining signal-to-noise ratios of said demodulated signals (see for example, Figure 2, column 7, lines 15-19, lines 42-43, the bit-energy (signal)/noise (Signal-to-noise) (Signal-to-noise) ratio determining circuit (224) coupled to the receiver (22) via received signal path (decoder (223) and demodulator (222)), and transmission power control bit generators connected to said signal-to-noise ratio determining circuits respectively for generating said transmission power control bit signals based on said signal-to-noise rations (see for example, Figure 2, column 7, lines 21-27, and column 8, lines 8-16, the control circuit (224) including power control bit generator and energy

(signal)/noise ration determining circuit), said transmission power control system comprising (see for example, Figure 2 (220), column 1, lines 8-13, column 2, lines 50-67 continued to column 3, lines 1-67, and column 4, lines 1-33): a communication state monitor circuit coupled to said receivers for detecting quality deterioration of a channel quality of radio communication between said base station and said mobile stations (see for example, Figures 1-2, column 4, lines 1-26, column 5, lines 42-67, column 7, lines 42-43, and column 8, lines 25-36, the control circuit (224) and channel modulator (communication monitor circuit) coupled to the receiver (221) for detecting signal quality deterioration between base station and mobile station communication (communication state)); and a transmission power bit adjusting circuit coupled to said communication state monitor circuit and said transmission power control bit generators for controlling said transmission power control bit signals so as to suppress an increase of transmission power of said mobile stations when said communication state monitor circuit detects said quality deterioration (see for example, Figure 2, column 7, lines 21-27, the transmission power control monitoring, and adjusting to increase or decrease the transmission power when detects quality deterioration).

Kang does not specifically disclose the "communication state".

In related art dealing with mobile communication system, Okamoto teaches the "communication state" (see for example, column 1, lines 9-11, column 2, lines 31-41, column 7, lines 1-10).

It would have been obvious to one of ordinary skill in the art at the time invention was made to check "communication state" in Kang's wireless power control system to watch for any quality deterioration in the wireless communication system, as disclosed by Okanoto (see for example, column 2, lines 31-41).

Regarding claim 22, Kang disclose a method of controlling transmission power of mobile stations from a base station of a mobile communication system (see for example, Figure 2 (220), column 1, lines 8-13, column 2, lines 50-67 continued to column 3, lines 1-67, and column 4, lines 1-33), comprising: monitoring at said base station a channel quality of radio communication between said base station and said mobile stations (see for example, Figures 1-2, column 4, lines 1-26, column 5, lines 42-67, and column 8, lines 25-36, the control circuit (224) and channel modulator (communication monitor circuit) coupled to the transmitter (226) for detecting signal quality deterioration between base station and mobile station communication (communication state)); judging at said base station, whether said monitored channel quality is worse than a predetermined state (see for example, Figure 2, column 5, lines 49-67, column 7, lines 21-27, the control circuit (224) contains the judging unit with the monitoring unit for mobile communications to monitor and adjust power according to the predetermined state if deterioration occurs); and notifying, in said base station, an external circuit of said quality deterioration when said channel quality is

judged to be worse than said predetermined state (see for example, Figures 1-2, column 5, lines 49-67, column 6, lines 1-56, column 7, lines 21-27, the control circuit (224) contains the judging unit with the monitoring unit and notifying unit for mobile communications to monitor and adjust power when deterioration occurs, and notify external circuit).

Kang does not specifically disclose the “communication state”.

In related art dealing with mobile communication system, Okamoto teaches the “communication state” (see for example, column 1, lines 9-11, column 2, lines 31-41, column 7, lines 1-10).

It would have been obvious to one of ordinary skill in the art at the time invention was made to check “communication state” in Kang's wireless power control system to watch for any quality deterioration in the wireless communication system, as disclosed by Okanoto (see for example, column 2, lines 31-41).

Regarding claim 27, Kang disclose a method of controlling transmission power of mobile stations of a mobile communication system by use of transmission power control bit signals transmitted from a base station (see for example, Figure 2 (220), column 1, lines 8-13, column 2, lines 50-67 continued to column 3, lines 1-67, and column 4, lines 1-33), comprising; demodulating transmission signals transmitted from said mobile stations to produce demodulated signals (see for example, Figure 2, column 4, lines 1-4, column 7,

lines 15-19, column 8, lines 1-5, the base station (220) receiver (221) receives the signal from the mobile (210) for demodulating (demodulator 222)); determining signal-to-noise ratios of said demodulated signals generating said transmission power control bit signals on the basis of said signal-to-noise rations (see for example, Figure 2, column 7, lines 15-19, the bit-energy (signal)/noise (Signal-to-noise) ratio determining circuit (224) coupled to the receiver (22) via received signal path (decoder (223) and demodulator (222)); detecting at said base station quality deterioration of a channel quality of radio communication between said base station and said mobile stations (see for example, Figures 1-2, column 4, lines 1-26, column 5, lines 42-67, and column 8, lines 25-36, the control circuit (224) and channel modulator (communication monitor circuit) coupled to the transmitter (226) for detecting signal quality deterioration between base station and mobile station communication (communication state)); and controlling at said based station said transmission power control bit signals so as to suppress an increase of transmission power of said mobile stations when said quality deterioration is detected (see for example, Figure 2, column 7, lines 21-27, the transmission power control monitoring, and adjusting to increase or decrease the transmission power when detects quality deterioration).

Kang does not specifically disclose the “communication state”.

In related art dealing with mobile communication system, Okamoto teaches the “communication state” (see for example, column 1, lines 9-11, column 2, lines 31-41, column 7, lines 1-10).

It would have been obvious to one of ordinary skill in the art at the time invention was made to check "communication state" in Kang's wireless power control system to watch for any quality deterioration in the wireless communication system, as disclosed by Okanoto (see for example, column 2, lines 31-41).

Regarding claim 35, Kang disclose a base station in a mobile communication system (see for example, Figure 2 (220), column 1, lines 8-13, column 2, lines 50-63) comprising: a receiver which demodulates transmission signals transmitted from plural mobile stations (see for example, Figure 2, column 4, lines 1-4, lines 64-67, column 7, lines 15-19, lines 42-43, column 8, lines 1-5, column 9, lines 22-26, the base station (220) receiver (221) receives the signal from the mobile (210) or plural mobile stations for demodulating (demodulator 222)), a communication state monitor coupled to said receiver which detects a deterioration of a channel quality of radio communication between said base station and the plural mobile stations (see for example, Figures 1-2, column 4, lines 1-26, lines 64-67, column 5, lines 42-67, column 7, lines 42-43, and column 8, lines 25-36, the control circuit (224) and channel modulator (communication monitor circuit) coupled to the receiver (221) for detecting signal quality deterioration between base station and plural mobile stations communication (communication state)); a transmission power control signal adjusting circuit coupled to said communication state monitor (see for example, Figure 2, column

7, lines 21-27, the transmission power control monitoring, and adjusting to increase or decrease the transmission power when detects quality deterioration), which controls transmission power control signals so as to decrease the transmission power of the plural mobile stations if said communication sate monitor detects the deterioration (see for example, Figure 2, column 4, lines 64-67, column 7, lines 21-27, the transmission power control monitoring, and adjusting to increase or decrease the transmission power when detects quality deterioration); and a transmitter (see for example, Figure 2, transmitter 226), coupled to said transmission power control signal adjusting circuit (see for example, Figure 2, transmitter (226) coupled to the transmission power control signal adjusting circuit 224 and traffic channels modulator 225), which transmits the transmission power control signal to the plural mobile stations (see for example, Figure 2, column 4, lines 64-67, column 7, lines 21-27, lines 42-43, column 8,lines 17-24, the transmitter (226) transmits control signal to the plural mobile stations (210)).

Kang does not specifically disclose the “communication state”.

In related art dealing with mobile communication system, Okamoto teaches the “communication state” (see for example, column 1, lines 9-11, column 2, lines 31-41, column 7, lines 1-10).

It would have been obvious to one of ordinary skill in the art at the time invention was made to check “communication state” in Kang's wireless power control system to watch for any quality deterioration in the wireless

communication system, as disclosed by Okanoto (see for example, column 2, lines 31-41).

Regarding claim 37, Kang disclose a mobile station among plural mobile stations in a mobile communication system (see for example, Figure 2 (210), column 1, lines 8-13, column 3, lines 49-67, column 4, lines 64-67), comprising; a transmitter which transmits a signal to a base station (see for example, Figure 2 (215), column 7, lines 11-12, and lines 42-43, transmitter (215) transmits to the base station (220)); a receiver which receives from the base station (see for example, Figure 2 (211), column 7, lines 42-51, receiver (211) receives from the base station (220)), a transmission power control signal directing to decrease a power of the signal to be transmitted to the base station in the case where a deterioration of a channel quality of radio communication between the base station and the plural mobile stations is detected at the base station (see for example, column 3, lines 1-7, column 5, lines 7-22, lines 35-40, lines 47-64, the transmission power control signal (target bit-energy (signal)/noise ratio) is decreased where a deterioration of communication (communication state) detected); and a transmission power controller which decides a transmission power of the signal to be transmitted to the base station based on the transmission power control signal (see for example, column 7, lines 3-6, lines 11-12, lines 40-41, base on the power control signal (target bit-energy (signal)/noise ratio) the transmission power controller (213) decides on the transmission power

of the signal to be transmitted to the base station).

Kang does not specifically disclose the "communication state".

In related art dealing with mobile communication system, Okamoto teaches the "communication state" (see for example, column 1, lines 9-11, column 2, lines 31-41, column 7, lines 1-10).

It would have been obvious to one of ordinary skill in the art at the time invention was made to check "communication state" in Kang's wireless power control system to watch for any quality deterioration in the wireless communication system, as disclosed by Okanoto (see for example, column 2, lines 31-41).

Regarding claim 39, Kang disclose a mobile communication system comprising a base station and plural mobile stations (see for example, Figure 2 (210), column 1, lines 8-13, column 3, lines 49-67, column 4, lines 64-67), wherein said base station (see for example, Figure 2 (220), column 1, lines 8-13, column 2, lines 50-63) comprises: a receiver which demodulates transmission signals transmitted from said plural mobile stations (see for example, Figure 2, column 4, lines 1-4, column 7, lines 15-19, lines 42-43, column 8, lines 1-5, column 9, lines 22-26, the base station (220) receiver (221) receives the signal from the mobile (210) for demodulating (demodulator 222)), a communication state monitor, coupled to said receiver, which detects a deterioration of a channel quality of radio communication between said base station and said plural mobile

stations' (see for example, Figures 1-2, column 4, lines 1-26, column 5, lines 42-67, column 7, lines 42-43, and column 8, lines 25-36, the control circuit (224) and channel modulator (communication monitor circuit) coupled to the receiver (221) for detecting signal quality deterioration between base station and mobile station communication (communication state)), a transmission power control signal adjusting circuit coupled to said communication state monitor which controls transmission power control signals so us to decrease the transmission power of said plural mobile stations if said communication sate monitor detects the deterioration (see for example, Figure 2, column 7, lines 21-27, the transmission power control monitoring, and adjusting to increase or decrease the transmission power when detects quality deterioration; and a transmitter (see for example, Figure 2, transmitter 226), coupled to said transmission power control signal adjusting circuit (see for example, Figure 2, transmitter (226) coupled to the transmission power control signal adjusting circuit 224 and traffic channels modulator 225), which transmits the transmission power control signals to the plural mobile stations (see for example, Figure 2, column 4, lines 64-67, column 7, lines 21-27, lines 42-43, column 8,lines 17-24, the transmitter (226) transmits control signal to the plural mobile stations (210)), and each of said mobile stations comprises (see for example, Figure 2 (210), column 1, lines 8-13, column 3, lines 49-67, column 4, lines 64-67): a transmitter which transmits a signal to said base station (see for example, Figure 2 (215), column 7, lines 11-12, and lines 42-43, transmitter (215) transmits to the base station (220)), a

receiver which receives one of the transmission power control signals from the base station (see for example, Figure 2 (211), column 7, lines 42-51, receiver (211) receives from the base station (220)); and a transmission power controller which decides a transmission power of the signal to be transmitted to said base station based on the transmission power control signal received by said receiver (see for example, column 7, lines 3-6, lines 11-12, lines 40-41, base on the power control signal (target bit-energy (signal)/noise ratio) the transmission power controller (213) decides on the transmission power of the signal to be transmitted to the base station).

Kang does not specifically disclose the "communication state".

In related art dealing with mobile communication system, Okamoto teaches the "communication state" (see for example, column 1, lines 9-11, column 2, lines 31-41, column 7, lines 1-10).

It would have been obvious to one of ordinary skill in the art at the time invention was made to check "communication state" in Kang's wireless power control system to watch for any quality deterioration in the wireless communication system, as disclosed by Okanoto (see for example, column 2, lines 31-41).

Regarding claim 40, Kang disclose a method, for a mobile communication system comprising a base station and plural mobile stations (see for example, Figure 2 (220), column 1, lines 8-13, column 2, lines 50-63, base station, and

Figure 2 (210), column 1, lines 8-13, column 3, lines 49-67, column 4, lines 64-67, plural mobile stations 210 (only one is shown in Figure 2, column 7, lines 42-43), comprising: demodulating transmission signals transmitted from the plural mobile stations (see for example, Figure 2, column 4, lines 1-4, lines 64-67, column 7, lines 15-19, lines 42-43, column 8, lines 1-5, column 9, lines 22-26, the base station (220) receiver (221) receives the signal from the mobile (210) or plural mobile stations for demodulating (demodulator 222)); detecting at the base station a deterioration of a channel quality of radio communication between said base station and the plural mobile stations (see for example, Figures 1-2, column 4, lines 1-26, lines 64-67, column 5, lines 42-67, column 7, lines 42-43, and column 8, lines 25-36, the control circuit (224) and channel modulator (communication monitor circuit) coupled to the transmitter (226) for detecting signal quality deterioration between base station and plural mobile stations communication (communication state)); controlling, at the base station, power control signals so as to decrease the transmission power of the plural mobile stations if said communication sate monitor detects the deterioration (see for example, Figure 2, column 4, lines 64-67, column 7, lines 21-27, the transmission power control monitoring, and adjusting to increase or decrease the transmission power when detects quality deterioration); and transmitting the transmission power control signals to the plural mobile stations (see for example, Figure 2, column 4, lines 64-67, column 7, lines 21-27, lines 42-43, column 8,lines 17-24, the transmitter (226) transmits control signal to the plural mobile stations (210)).

Kang does not specifically disclose the "communication state".

In related art dealing with mobile communication system, Okamoto teaches the "communication state" (see for example, column 1, lines 9-11, column 2, lines 31-41, column 7, lines 1-10).

It would have been obvious to one of ordinary skill in the art at the time invention was made to check "communication state" in Kang's wireless power control system to watch for any quality deterioration in the wireless communication system, as disclosed by Okanoto (see for example, column 2, lines 31-41).

Regarding claim 41, Kang disclose a method for a mobile communication system comprising a base station and plural mobile stations (see for example, Figure 2 (220), column 1, lines 8-13, column 2, lines 50-63, base station, and Figure 2 (210), column 1, lines 8-13, column 3, lines 49-67, column 4, lines 64-67, plural mobile stations 210 (only one is shown in Figure 2, column 7, lines 42-43), comprising: transmitting a signal to the base station (see for example, Figure 2 (215), column 7, lines 11-12, and lines 42-43, transmitter (215) transmits to the base station (220)); receiving, from the base station (see for example, Figure 2 (211), column 7, lines 42-51, receiver (211) receives from the base station (220)), a transmission power control signal directing to decrease a power of the signal to be transmitted to the base station in the case where a deterioration of a channel quality of radio communication between the base

station and the plural mobile stations is detected at the base station (see for example, column 3, lines 1-7, column 5, lines 7-22, lines 35-40, lines 47-64, the transmission power control signal (target bit-energy (signal)/noise ratio) is decreased where a deterioration of communication (communication state) detected); and deciding a transmission power of the signal to be transmitted to the base station based on the transmission power control signal (see for example, column 7, lines 3-6, lines 11-12, lines 40-41, base on the power control signal (target bit-energy (signal)/noise ratio) the transmission power controller (213) decides on the transmission power of the signal to be transmitted to the base station).

Kang does not specifically disclose the "communication state".

In related art dealing with mobile communication system, Okamoto teaches the "communication state" (see for example, column 1, lines 9-11, column 2, lines 31-41, column 7, lines 1-10).

It would have been obvious to one of ordinary skill in the art at the time invention was made to check "communication state" in Kang's wireless power control system to watch for any quality deterioration in the wireless communication system, as disclosed by Okanoto (see for example, column 2, lines 31-41).

Regarding claim 42, Kang disclose a method for a mobile communication system comprising a base station and plural mobile stations (see for example,

Figure 2 (210), column 1, lines 8-13, column 3, lines 49-67, column 4, lines 64-67), comprising; demodulating transmission signals transmitted from the plural mobile stations (see for example, Figure 2, column 4, lines 1-4, column 7, lines 15-19, lines 42-43, column 8, lines 1-5, column 9, lines 22-26, the base station (220) receiver (221) receives the signal from the mobile (210) for demodulating (demodulator 222)); detecting at the base station a deterioration of a channel quality of radio communication between-said base station and the plural mobile stations (see for example, Figures 1-2, column 4, lines 1-26, column 5, lines 42-67, column 7, lines 42-43, and column 8, lines 25-36, the control circuit (224) detecting signal quality deterioration between base station and mobile station communication (communication state)); controlling at the base station transmission power control signals so us to decrease the transmission power of the plural mobile stations if said communication sate monitor detects the deterioration (see for example, Figure 2, column 7, lines 21-27, the transmission power control monitoring, and adjusting to increase or decrease the transmission power when detects quality deterioration; transmitting the transmission power control signals to the plural mobile stations (see for example, Figure 2, column 4, lines 64-67, column 7, lines 21-27, lines 42-43, column 8,lines 17-24, the transmitter (226) transmits control signal to the plural mobile stations (210)); transmitting a signal to the base station; receiving one of the transmission power control signals form the base station (see for example, Figure 2 (215), column 7, lines 11-12, and lines 42-43, transmitter (215) transmits to the base station

(220)); and deciding a transmission power of the signal to be transmitted to the base station based on the transmission power control signal received (see for example, column 7, lines 3-6, lines 11-12, lines 40-41, base on the power control signal (target bit-energy (signal)/noise ratio) the transmission power controller (213) decides on the transmission power of the signal to be transmitted to the base station).

Kang does not specifically disclose the "communication state".

In related art dealing with mobile communication system, Okamoto teaches the "communication state" (see for example, column 1, lines 9-11, column 2, lines 31-41, column 7, lines 1-10).

It would have been obvious to one of ordinary skill in the art at the time invention was made to check "communication state" in Kang's wireless power control system to watch for any quality deterioration in the wireless communication system, as disclosed by Okanoto (see for example, column 2, lines 31-41).

Regarding claims 2 and 18, Kang in view of Okamoto disclose all the imitations in claims 1, 14, and further, Kang teaches receivers for demodulating transmission signals transmitted from said mobile stations to produce demodulated signals (see for example, Figure 2, column 4, lines 1-4, column 7, lines 15-19, lines 42-43, column 8, lines 1-5, column 9, lines 22-26, the base station (220) receiver (221) receives the signal from the mobile (210) for

demodulating (demodulator 222)), wherein: said monitor unit is coupled to said receivers for monitoring total interference electric power of said demodulated signals as said communication state (see for example, Figures 2, column 4, lines 1-26, column 7, lines 21-27, the control circuit (224) contains the monitoring unit for the mobile communication and it is coupled to the receiver 221 (via decoder 223, and demodulator 222) monitoring total interference), and said judging unit judges that said communication state is worse than said predetermined state when said total interference electric power is equal to or larger than a predetermined threshold (see for example, Figure 2, column 3, lines 8-14, column 5, lines 49-68, column 6, lines 50-57, column 7, lines 21-27, the control circuit (224) contains the adjusting unit with the monitoring unit for mobile communications to monitor and adjust power according to the predetermined state if deterioration occurs).

Regarding claims 3, 11 and 19, Kang in view of Okamoto disclose all the imitations in claims 1, 6, 14, and further, Kang teaches a base station of a mobile communication system (see for example, Figure 2 (220), column 1, lines 8-13, column 2, lines 50-63) comprising: receivers for demodulating transmission signals transmitted from mobile stations to produce demodulated signals (see for example, Figure 2, column 4, lines 1-4, column 7, lines 15-19, lines 42-43, column 8, lines 1-5, column 9, lines 22-26, the base station (220) receiver (221) receives the signal from the mobile (210) for demodulating (demodulator 222));

signal-to-noise ratio determining circuits coupled to said receivers respectively for determining signal-to-noise ratios of said demodulated signals (see for example, Figure 2, column 7, lines 15-19, lines 42-43, column 9, lines 22-26, the bit-energy (signal)/noise (Signal-to-noise) ratio determining circuit (224) coupled to the receiver (22) via received signal path (decoder (223) and demodulator (222)), wherein: said monitor unit coupled to said signal-to-noise ratio determining circuits monitors said signal-to-noise ratios as said communication state (see for example, Figures 1-2, column 4, lines 1-26, column 5, lines 29-67, column 7, lines 15-19, and column 8, lines 25-36, column 9, lines 22-26, the control circuit (224) and channel modulator (communication monitor circuit) coupled to the bit-energy (signal)/noise (Signal-to-noise) ratio determining circuit (224) monitors the bit-energy (signal)/noise (Signal-to-noise) ratio), and said judging unit judges that said communication state is worse than said predetermined state when the number of signal-to-noise ratios each of which is smaller than a predetermined value and is equal to or larger than a predetermined threshold (see for example, Figure 2, column 5, lines 49-67, column 7, lines 21-27, the control circuit (224) contains the judging unit with the monitoring unit for mobile communications to monitor and adjust power according to the predetermined state).

Regarding claim 4, 12, and 20, Kang in view of Okamoto disclose all the imitations in claims 1, 6, 14, and further, Kang teaches base station receivers for demodulating transmission signals transmitted from said mobile stations to

produce demodulated signals (see for example, Figure 2, column 4, lines 1-4, column 7, lines 15-19, lines 42-43, column 8, lines 1-5, column 9, lines 22-26, the base station (220) receiver (221) receives the signal from the mobile (210) for demodulating (demodulator 222)), signal-to-noise ratio determining circuits coupled to said receivers respectively for determining signal-to-noise ratios of said demodulated signals and transmission power control bit generators coupled to said signal-to-noise ratio determining circuits respectively for generating transmission power control bit signals on the basis of said signal-to-noise rations (see for example, Figure 2, column 7, lines 15-19, lines 42-43, column 9, lines 22-26, the bit-energy (signal)/noise (Signal-to-noise) ratio determining circuit (224) coupled to the receiver (22) via received signal path (decoder (223) and demodulator (222)), wherein: said monitor unit, coupled to said transmission power control bit generators monitors said transmission power control bit signals as said communication state (see for example, Figures 1-2, column 4, lines 1-26, column 5, lines 29-67, column 7, lines 15-19, and column 8, lines 25-36, column 9, lines 22-26, the control circuit (224) and channel modulator (communication monitor circuit) coupled to the bit-energy (signal)/noise (Signal-to-noise) ratio determining circuit (224) monitors the bit-energy (signal)/noise (Signal-to-noise) ratio); and said judging unit judges that said communication state is worse than said predetermined state when the number of said transmission power control bit signals each of which require increase of transmission power is equal to or larger than a predetermined threshold (see for example, Figure 2, column 5, lines 49-

67, column 7, lines 21-27, the control circuit (224) contains the judging unit with the monitoring unit for mobile communications to monitor and adjust power according to the predetermined state).

Regarding claim 5, 13, and 21, Kang in view of Okamoto disclose all the imitations in claims 1, 6, 14, and further, Kang teaches a base station receiver for demodulating transmission signals transmitted from said mobile stations to produce demodulated signals (see for example, Figure 2, column 4, lines 1-4, column 7, lines 15-19, lines 42-43, column 8, lines 1-5, column 9, lines 22-26, the base station (220) receiver (221) receives the signal from the mobile (210) for demodulating (demodulator 222)), wherein: said monitor unit, coupled to said receivers, monitors total interference electric power of said demodulated signals and the number of said mobile terminals communicating with said base station as said communication state (see for example, Figures 2, column 4, lines 1-26, column 7, lines 21-27, the control circuit (224) contains the monitoring unit for the mobile communication and it is coupled to the receiver 221 (via decoder 223, and demodulator 222) monitoring total interference); and said adjusting unit judges that said communication state is worse than said predetermined state when a changing rate of a ratio of said total interference electric power to the number of said mobile terminals communicating with said base station is equal to or larger than a predetermined threshold (see for example, Figure 2, column 3, lines 8-14, column 5, lines 49-68, column 6, lines 6-14, 50-57, column 7, lines 21-27, the

control circuit (224) contains the adjusting unit with the monitoring unit for mobile communications to monitor and adjust power according to the predetermined state if deterioration occurs).

Regarding claim 7 and 15, Kang in view of Okamoto disclose all the imitations in claims 6, 14, and further, Kang teaches a base station, wherein said transmission power control bit generators generate the transmission power control bit signals which requires increase of transmission power of said mobile stations when signal-to-noise ratios are equal to or lower than a desired value (see for example, Figure 2, column 5, lines 29-34, column 7, lines 21-27, and column 8, lines 8-16, the control circuit (224) including power control bit generator and energy (signal)/noise (Signal-to-noise) ration determining circuit, increase of power when signal-to-noise ratio are equal or lower that desired); and said transmission power control bit adjusting circuit decreases said desired value to suppress an increase of transmission power of said mobile stations when said communication state monitor circuit detects said quality deterioration (see for example, Figure 2, column 5, lines 35-41, column 7, lines 21-27, and column 8, lines 8-16, the control circuit (224) including power control bit generator and energy (signal)/noise (Signal-to-noise) ration determining circuit, decrease of desired power when signal-to-noise ratio are equal to).

Regarding claims 8 and 29, Kang in view of Okamoto disclose all the

imitations in claims 6, 27, and further, Kang teaches a base station wherein: said transmission power control bit adjusting circuit changes said transmission power control bit signals so that said transmission power control bit signals a require decrease of said transmission power of said mobile stations (see for example, Figure 2, column 5, lines 35-41, column 7, lines 21-27, and column 8, lines 8-16, the control circuit (224) including power control bit generator and energy (signal)/noise (Signal-to-noise) ration determining circuit, decrease of desired power when signal-to-noise ratio are equal to).

Regarding claims 9 and 30, Kang in view of Okamoto disclose all the imitations in claims 6, 27, and further, Kang teaches a base station wherein said communication monitor circuit comprises: a monitor unit for monitoring a communication state of said radio communication (see for example, Figures 2, column 7, lines 21-27, the control circuit (224) contains the monitoring unit for the mobile communication), a judging unit coupled to said monitor unit for judging whether said communication state monitored by said monitor unit is worse than a predetermined state (see for example, Figure 2, column 5, lines 49-67, column 7, lines 21-27, the control circuit (224) contains the judging unit with the monitoring unit for mobile communications to monitor and adjust power according to the predetermined state if deterioration occurs), and a notifying unit coupled to said judging unit for notifying said transmission power control bit adjusting circuit of said quality deterioration when said judging unit judges that said communication

state is worse than said predetermined state (see for example, Figures 1-2, column 5, lines 35-41, lines 49-67, column 6, lines 1-56, column 7, lines 21-27, and column 8, lines 8-16, the control circuit (224) contains the judging unit with the monitoring unit and notifying unit for mobile communications to monitor and adjust power when deterioration occurs, and judging unit for notifying transmission power control bit adjusting).

Regarding claim 10, Kang in view of Okamoto disclose all the imitations in claim 6, and further, Kang teaches a base station wherein: said communication state monitor circuit is connected to said receivers stations (see for example, Figures 1-2, column 4, lines 1-26, column 5, lines 42-67, column 7, lines 42-43, and column 8, lines 25-36, the control circuit (224) and channel modulator (communication monitor circuit) coupled to the transmitter (226) for detecting signal quality deterioration between base station and mobile station), monitors total interference electric power of said demodulated signals as said communication state (see for example, Figures 2, column 4, lines 1-26, column 7, lines 21-27, the control circuit (224) contains the monitoring unit for the mobile communication and it is coupled to the receiver 221 (via decoder 223, and demodulator 222) monitoring total interference), and judges that said communication state is worse than said predetermined state when said total interference electric power is larger than a predetermined threshold (see for example, Figure 2, column 3, lines 8-14, column 5, lines 49-68, column 6, lines

50-57, column 7, lines 21-27, the control circuit (224) contains the adjusting unit with the monitoring unit for mobile communications to monitor and adjust power according to the predetermined state if deterioration occurs).

Regarding claims 23, 28, and 31, Kang in view of Okamoto disclose all the imitations in claims 22, 27, and further, Kang teaches demodulating transmission signals transmitted from said mobile stations to produce demodulated signals (see for example, Figure 2, column 4, lines 1-4, column 7, lines 15-19, lines 42-43, column 8, lines 1-5, column 9, lines 22-26, the base station (220) receiver (221) receives the signal from the mobile (210) for demodulating (demodulator 222)), wherein: total interference electric power of said demodulated signals is monitored as said communication state (see for example, Figures 2, column 4, lines 1-26, column 7, lines 21-27, the control circuit (224) contains the monitoring unit for the mobile communication and it is coupled to the receiver 221 (via decoder 223, and demodulator 222) monitoring total interference); and said communication state is judged to be worse than said predetermined state when said total interference electric power is equal to or larger than a predetermined threshold (see for example, Figure 2, column 3, lines 8-14, column 5, lines 49-68, column 6, lines 50-57, column 7, lines 21-27, the control circuit (224) contains the adjusting unit with the monitoring unit for mobile communications to monitor and adjust power according to the predetermined state if deterioration occurs).

Regarding claims 24 and 32,. in view of Okamoto Kang disclose all the imitations in claims 22, 27, and further, Kang teaches demodulating transmission signals transmitted from said mobile stations to produce demodulated signals (see for example, Figure 2, column 4, lines 1-4, column 7, lines 15-19, lines 42-43, column 8, lines 1-5, column 9, lines 22-26, the base station (220) receiver (221) receives the signal from the mobile (210) for demodulating (demodulator 222)), and determining signal-to-noise ratios of said demodulated signals (see for example, Figure 2, column 7, lines 15-19, lines 42-43, column 9, lines 22-26, the bit-energy (signal)/noise (Signal-to-noise) ratio determining circuit (224) coupled to the receiver (22) via received signal path (decoder (223) and demodulator (222)), wherein: said monitoring periodically monitors an average of said signal-to-noise ratios as said communication state (see for example, column 5, lines 23-29, calculating the average by taking the difference between the bit-energy/noise ration and the target bit-energy/noise ratio); and said communication state is judged to be worse than said predetermined state when the number of signal-to-noise ratios each of which is smaller than a predetermined value is equal to larger than a predetermined threshold (see for example, Figure 2, column 5, lines 49-67, column 7, lines 21-27, the control circuit (224) contains the judging unit with the monitoring unit for mobile communications to monitor and adjust power according to the predetermined state).

Regarding claims 25 and 33, Kang in view of Okamoto disclose all the

imitations in claims 22, 27, and further, Kang teaches demodulating transmission signals transmitted from said mobile stations to produce demodulated signals (see for example, Figure 2, column 4, lines 1-4, column 7, lines 15-19, lines 42-43, column 8, lines 1-5, column 9, lines 22-26, the base station (220) receiver (221) receives the signal from the mobile (210) for demodulating (demodulator 222)), determining signal-to-noise ratios of said demodulated signals and generating transmission power control bit signals on the basis of said signal-to-noise rations (see for example, Figure 2, column 7, lines 15-19, lines 42-43, column 9, lines 22-26, the bit-energy (signal)/noise (Signal-to-noise) ratio determining circuit (224) coupled to the receiver (22) via received signal path (decoder (223) and demodulator (222)), wherein: said transmission power control bit signals are monitored as said communication state (see for example, Figures 1-2, column 4, lines 1-26, column 5, lines 29-67, column 7, lines 15-19, and column 8, lines 25-36, column 9, lines 22-26, the control circuit (224) and channel modulator (communication monitor circuit) coupled to the bit-energy (signal)/noise (Signal-to-noise) ratio determining circuit (224) monitors the bit-energy (signal)/noise (Signal-to-noise) ratio); and said communication state is judged to be worse than said predetermine state when the number of said transmission power control bit signals, each of which require increase of transmission power, is equal to or larger than a predetermined threshold (see for example, Figure 2, column 5, lines 49-67, column 7, lines 21-27, the control circuit (224) contains the judging unit with the monitoring unit for mobile

communications to monitor and adjust power according to the predetermined state).

Regarding claims 26 and 34, Kang in view of Okamoto disclose all the imitations in claims 22, 27, and further, Kang teaches demodulating transmission signals transmitted from said mobile stations to produce demodulated signals (see for example, Figure 2, column 4, lines 1-4, column 7, lines 15-19, lines 42-43, column 8, lines 1-5, column 9, lines 22-26, the base station (220) receiver (221) receives the signal from the mobile (210) for demodulating (demodulator 222)), wherein: total interference electric power of said demodulated signals and the number of said mobile terminals communicating with said base station are monitored as said communication state (see for example, Figures 2, column 4, lines 1-26, column 7, lines 21-27, the control circuit (224) contains the monitoring unit for the mobile communication and it is coupled to the receiver 221 (via decoder 223, and demodulator 222) monitoring total interference); and said communication state is judged to be worse than said predetermined state when a changing rate of a ratio of said total interference electric power to the number of said mobile terminals communicating with said base station is equal to or larger than a predetermined threshold (see for example, Figure 2, column 3, lines 8-14, column 5, lines 49-68, column 6, lines 50-57, column 7, lines 21-27, the control circuit (224) contains the adjusting unit with the monitoring unit for mobile communications to monitor and adjust power according to the predetermined

state if deterioration occurs).

Regarding claim 36, Kang in view of Okamoto disclose all the imitations in claim 35, and further, Kang teaches a base station wherein, said communication sate monitor monitors an interference power of the transmission signal received by said receiver, and detects the deterioration of the communication sate based on the interference power (see for example, Figures 1-2, column 4, lines 1-26, column 5, lines 42-67, column 7, lines 42-43, and column 8, lines 25-36, the control circuit (224) and channel modulator (communication monitor circuit) coupled to the receiver (221) for detecting signal quality deterioration between base station and mobile station)

Regarding claim 38, Kang in view of Okamoto disclose all the imitations in claim 37, and further, Kang teaches a mobile station wherein, the deterioration of the communication sate is detected based on an interference power of transmission signals, from the plural mobile stations, received by the base station (see for example, Figures 1-2, column 4, lines 1-26, lines 64-67, column 5, lines 42-67, column 7, lines 42-43, and column 8, lines 25-36, the control circuit (224) and channel modulator (communication monitor circuit) coupled to the receiver (221)for detecting signal quality deterioration between base station and plural mobile stations).

## *Response to Arguments*

2. Applicant's arguments with respect to claims 1-42 have been considered but are **moot** in view of the new ground(s) of rejection.

## *Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

The prior art made of record considered pertinent to applicant's disclosure, see PTO-892 form.

## Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shaima Q. Aminzay whose telephone number is 571-272-7874. The examiner can normally be reached on 7:00 AM -5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on 571-272-7882, the primary examiner, Nick Corsaro can be reached on 571-272-7876. The fax number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Shaima Q. Aminzay

(Examiner)

NICK CORSARO
PRIMARY EXAMINER

Nay Maung

(SPE)

Art Unit 2684

Jun 11, 2005